

---

## CS21003 ALGORITHMS-1

### Tutorial 8: Hash Tables

Date: 7 Nov 2020

---

## 1 Subarray Sum K

Given an array A of size N and an integer k, find the largest contiguous sequence whose sum is k.

For Eg. Input array is A = [-1, 2, 3, -4, -1, 6] and k = -1.

The output is the the subarray [-1, 2, 3, -4, -1] of length 5

## 2 Anagram group

Given N strings, find all groups of strings that are anagrams.

An anagram is a word or phrase formed by rearranging the letters of a different word or phrase, using all the original letters exactly once.

## 3 Guess the number of students

In a class of students, each student knows their marks for the class test. N students tell you how many students in the class have same marks as them. Find out the minimum number of students that must be present in the class to satisfy their claims.

## 4 Two integer sum

Given an array A of N integers, find two numbers such that they add up to K.

Bonus:

- How will you modify your algorithm such that three numbers add up to K
- How will you modify your algorithm such that four numbers add up to K

## 5 Flip the switch

You are given the state(On/Off) of light bulbs which are arranged in a grid of dimension N\*N. There are N switches(One per column) which can alter the state of all the light bulbs present in the column. Find the maximum number of rows that can have all bulbs either turned on or turned off using the switches.